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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/921,867	08/03/2001	Brian Samuel Beaman	YOR919930028US6	7821
7590 02/06/2008 Dr. Daniel P. Morris, Esq. IBM Corporation Intellectual Property Law Dept. P.O. Box 218 Yorktown Heights, NY 10598			EXAMINER TUGBANG, ANTHONY D	
			ART UNIT 3729	PAPER NUMBER
			MAIL DATE 02/06/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/921,867	Applicant(s) BEAMAN ET AL.	
	Examiner A. Dexter Tugbang	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-393 is/are pending in the application.
- 4a) Of the above claim(s) 53-393 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In light of the applicant(s) petition (filed on July 5, 2007) and the and the decision on the petition (mailed on August 1, 2007), the finality of the rejection of the last Office action (mailed on April 16, 2006) has been withdrawn and prosecution is hereby reopened.

The applicant(s) have been awarded the benefit of priority under 35 U.S.C. § 120 of the earlier filed nonprovisional applications. The amendment to the specification (on page 1) has been entered accordingly. The effective filing date of the instant application is April 30, 1993 based upon earlier filed application, serial no. 08/055,485.

The rejection with respect to Eldridge et al, as applied in the Final Rejection, is no longer applicable because the effective filed date of Eldridge is not prior to the effective filing date of the instant application. However, in view of the newly discovered prior art, a new grounds of rejection is set forth below.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --A Process of Fabrication an Electrical Interconnection Element Having a Contact Tip Structure--.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 30 through 32, 47 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 30, it is unclear if the phrase of "a texture" (line 2) is referring to the previous recitation of "a texture" (line 4 of Claim 20), or if this is a new texture. How many textures are there?

The problems of Claim 30 also occur in Claims 31 and 32.

In Claim 32, the phrase of "the embossing" (line 2) lacks positive antecedent basis.

In Claim 47, it is unclear what the phrase of "comprising...Pt" (lines 2-3) is previously referring to. Is the material referring to the "compliant core element" (line 2) or the "layer" (line 2)?

In Claim 49, the phrase "the surface layer" lacks positive antecedent basis.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 29, 31, 33 through 35, 37, 43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujii et al 4,637,130 and Quesyssac et al 5,089,877.

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Fujii discloses a process of fabricating an electrical interconnection element having a contact tip structure comprising: forming a contact tip structure (e.g. 2, 6, 15, 16 in Fig. 5A) on a sacrificial substrate (e.g. 9 or 17); prior to constructing the contact tip structure, providing a texture (i.e. either one of pit, raised contact surface, surface layer, or surface material) in an area of the sacrificial substrate, which is formed with the texture; attaching an electrical interconnection element (e.g. 1) to the contact tip structure to form a first structure (see Fig. 6) having the electrical interconnection element and the contact tip structure; and then removing the contact tip structure from the sacrificial substrate (in sequence of Figs. 7 and 8), which meets all of the limitations of the claimed manufacturing process.

The “first structure” (in Fig. 8) is inherently compliant because of the free standing contact tip structure. As evidence of inherency, the examiner cites Quesyssac, which states that free standing contact tip structures are “compliant” (col. 8, lines 57-63).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al in view of Birglechner et al 3,967,366.

Fujii discloses the claimed manufacturing method as relied upon above in Claim 29.

Fujii does not mention “embossing”.

Birglechner teaches providing a texture in an area of a sacrificial substrate (in Fig. 1) by embossing to form contact tip structures (col. 3, lines 39+).

The sacrificial substrate of both Fujii and Birglechner are both known as conventional lead frames.

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Fujii by forming the texture with embossing, as taught by Birglechner, to form and shape art recognized equivalent sacrificial substrates (i.e. lead frames).

9. Claims 36, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al in view of Suzuki et al 3,778,887.

Fujii discloses the claimed manufacturing method as relied upon above in Claims 29, 33, 34 and 37. Fujii does not mention that the contact tip surface material is gold (i.e. Au).

However, gold is a conventional and notoriously well known conductive material to from contact tip materials of electrical interconnection devices. As evidence of obviousness, the examiner cites Suzuki (col. 4, lines 58-68). Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the contact tip surface material of Fujii by using gold, as taught by Suzuki, to allow conductivity of the contact tip structure and to improve corrosion proofness.

10. Claims 40 through 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al in view of Queyssac 5,008,776.

Fujii discloses the claimed manufacturing method as relied upon above in Claims 29 and 33. Fujii does not mention that the contact tip comprises a bonding material.

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Queyssac shows that contact tip can include lead (i.e. Pb) "bonding materials" to solder and bond the contact tip structures to other electrical devices (col. 9, lines 11+).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Fujii by adding the bonding material of Queyssac, to positively allow the contact tip structure to be bonded to other electrical devices.

11. Claims 44 and 46 through 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al in view of Abe 4,763,407.

Fujii discloses the claimed manufacturing method as relied upon above in Claims 29 and 45. Fujii does not mention that the electrical interconnection structure is either an electrical conductor with a surface layer, or is a compliant core element and a layer.

Abe shows an electrical interconnection element (e.g. 11 in Fig. 4) as a layer or surface layer. The wires 13 of Abe can be read as an "elongated electrical conductor" or "compliant core element", or alternatively as a "layer" or "surface layer". The wires of Abe are formed of the conventional material of Au (i.e. gold, col. 3, lines 4+).

It would have obvious to one of ordinary skill in the art at the time the invention was made to have modified the electrical interconnection element of Fujii to adding the electrical conductor with a surface layer, or is a compliant core element with a layer, as taught by Abe, to allow the electrical interconnection element to coupled and connected to other electrical devices.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729**

January 31, 2008